

INJURIES TO BOSTON CHILDREN 1995-1999

**Injury Surveillance Program
Bureau of Health Statistics, Research & Evaluation
Massachusetts Department of Public Health
In Collaboration with Research and Technology Services, Boston Public Health Commission**

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Executive Summary

Unintentional injury is the leading cause of death for children ages 1-19 years both nationally and in Massachusetts. Suicide and homicide are ranked in the top four causes of death for older children ages 10-19 years.¹ This report presents data on injury hospitalizations² and deaths to Boston children from 1995-1999. Emergency Department visits for selected injuries are presented for a one year period. This report describes the incidence of injury to Boston children, identifies high-risk populations, and examines race, sex, and age-based differences.

Injuries may be defined and classified using multiple parameters. For example, an injury may be defined by a diagnosis (a fracture) or by the mechanism, or external cause of the injury (a fall). Injuries are also classified by intent: unintentional injuries ("accidents") and intentional injuries (assaults/homicides or self-inflicted/suicides). In this report injuries are classified by their external cause and intent. A complete listing of the external causes of injury with examples can be found in the Appendix.

In general, Boston children are injured at higher rates than children statewide, and preventing these injuries is an important public health goal. This report highlights the leading causes of injury and describes resources for prevention, including the programs and services administered by the Boston Public Health Commission's Childhood Injury Prevention Program. The Injury Surveillance Program and the Injury Prevention and Control Program at the Massachusetts Department of Public Health can provide additional data and technical assistance for intervention strategies and prevention resources.

Highlights from the report are summarized below:

INJURY FATALITIES:

- 127 Boston children (0-19 years of age) died of an injury between 1995-1999. The average annual injury fatality rate of 19.4/100,000 is 1.6 times the statewide rate (12.3/100,000) for the same time period.
- Injury fatality rates among Boston children decreased by 67% between 1995 (30.1/100,000) to 1999 (9.8/100,000).
- Firearm homicides were the leading cause of injury death to Boston children. Between 1995 and 1999, firearm homicides decreased by 76%. Of these:
 - 98% were male
 - 91% were black
 - 100% were between 15-19 years of age
- Boston children had a lower rate of motor vehicle occupant fatalities (1.4/100,000) than the statewide average (2.3/100,000).

NON-FATAL INJURY HOSPITALIZATIONS:

Between 1995 and 1999, an average of 680 Boston children were hospitalized annually due to an injury. The average annual hospitalization rate for Boston children (518.8/100,000) is almost twice the average statewide rate of 297.0/100,000.

- Between 1995 and 1999, injury hospitalization rates to Boston children declined by 65 % from 735.9/100,000 to 258.0/100,000.
- Falls were the leading cause of injury hospitalizations for Boston children (107.5/100,00) and for children statewide (71.3/100,000). An average of 141 Boston children were admitted for fall-related injuries each year.
- Self-inflicted poisoning was the second leading cause of injury hospitalization to Boston children accounting for an average of 60 hospitalizations each year.
- Boston children had higher hospitalization rates for violence-related injuries compared to children statewide. Hospitalizations for:
 - Firearm assaults were approximately 5 times the statewide average rate (11.9/100,000 vs 2.2/100,000) as were cut/pierce assault (22.4/100,000 vs 4.3/100,000).
 - Struck by assaults were almost three times the statewide average rate (14.2/100,00 vs 4.9/100,000).
- The burden of injury disproportionately affects some children.
 - While black children make up 33% of the Boston youth population, they accounted for 41% of injury hospitalizations. White children, on the other hand, make up 40% of Boston's youth population, but accounted for only 22% of the injury-related hospitalizations.

INJURY-RELATED EMERGENCY DEPARTMENT VISITS:

Comprehensive data on emergency department-treated injuries to Boston children are not available at this time. Data on selected injury indicators are available through the Boston Public Health Commission's Boston Emergency Department Surveillance System (BEDSS), a collaboration with four hospital-based pediatric emergency departments.

- From July 1999 to June 2000, children between the ages of 3 and 18 were treated at four Boston pediatric emergency departments for the following injuries:
 - Interpersonal violence (n=444)
 - Suicide attempts (n=78)
 - Self-harm in anger (n=7)
 - Alcohol and drug-related visits (n=31)

1 Reference: <http://www.cdc.gov/ncipc/osp/data..htm>, National Center for Health Statistics (NCHS)

2 Hospitalizations do not necessarily represent unique individuals, but episodes of care.

Contact Information:

Victoria Ozonoff, PhD, Director
Injury Surveillance Program
Bureau of Health Statistics, Research & Evaluation
Massachusetts Department of Public Health
250 Washington Street, 6th Floor
Boston, MA 02108
Phone: (617) 624-5663 Fax: (617) 624-5695

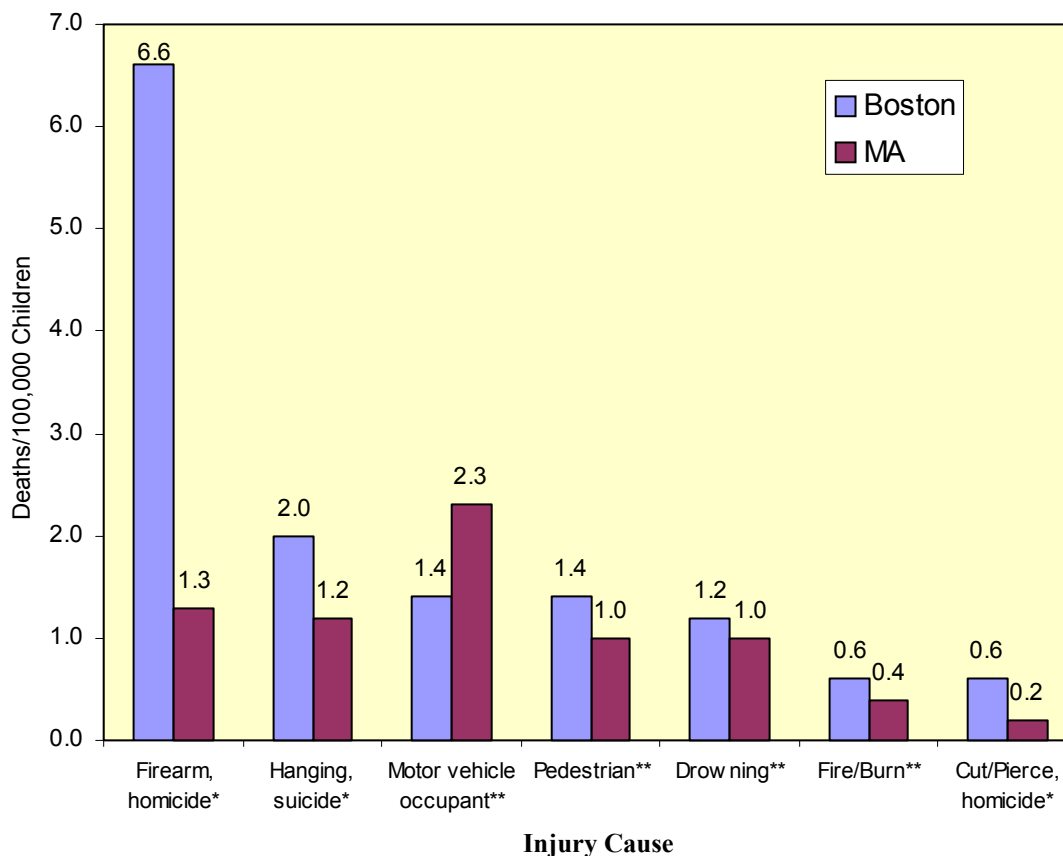
Cynthia Rodgers, MPH, Director
Injury Prevention and Control Program
Bureau of Family and Community Health
Massachusetts Department of Public Health
250 Washington Street, 4th Floor
Boston, MA 02108
Phone: (617) 624-5070 Fax: (617) 624-5075

Phyllis Sims, MS, Senior Research Associate
Research and Technology Services
Boston Public Health Commission
1010 Massachusetts Avenue, 6th Floor
Boston, MA 02118
Phone: (617) 534-2417 Fax: (617) 534-2422

Injury Data Summary

**Figure 1: Boston vs. Statewide Injury Fatality Rates
Children Ages 0-19 Years, 1995-1999**

Data Source: Registry of Vital Records and Statistics, Massachusetts Department of Public Health



* Intentional injuries

** Unintentional injuries

Summary

- From 1995 to 1999, 999 Massachusetts children (aged 0-19 years) died from their injuries. 127 of these children resided in Boston. The average annual injury fatality rate for children living in Boston (19.4/100,000) was 1.6 times the statewide rate (12.3/100,000) for this time period.
- Boston fatality rates for children were higher than statewide rates for all leading causes of injury with the exception of motor vehicle occupant (1.4/100,000 Boston vs. 2.3/100,000 statewide).
- Firearm homicides were the leading cause of injury deaths to children in Boston (6.6/100,000) while motor vehicle related occupant deaths were the leading cause of injury death to children statewide (2.3/100,000).

Table 1: Fatal Injuries to Boston Children, Ages 0-19 Years, 1995-1999

Injury Cause	Ages 0-4	Ages 5-9	Ages 10-14	Ages 15-19	Total (Ages 0-19)
Unintentional	9	6	8	21	44
MV Occupant	1	0	0	8	9
Drowning	1	2	2	3	8
Pedestrian	2	1	2	4	9
Fire/Burn	2	1	0	1	4
Bicycle	0	0	1	1	2
Poisoning	0	1	1	0	2
Falls	0	0	1	1	2
Other Injuries ¹	3	1	1	3	8
Intentional	5	1	0	67	73
Homicide	5	1	0	50	56
Firearm	0	0	0	43	43
Cut/Pierce	0	0	0	4	4
Suffocation	0	0	0	1	1
Maltreatment	2	0	0	0	2
Other Injuries ²	3	1	0	2	6
Suicide	0	0	0	17	17
Hanging	0	0	0	13	13
Firearm	0	0	0	2	2
Poisoning	0	0	0	2	2
Undetermined³	2	1	0	7	10
Total Injury Fatalities	16	8	8	95	127

Data Source: Registry of Vital Records and Statistics, Massachusetts Department of Public Health

Table 2A: Percentage of Childhood Injury Fatalities by Age Group

Age Group	Number	%
0-4 year olds	16	13%
5-9 year olds	8	6%
10-14 year olds	8	6%
15-19 year olds	95	75%

Table 2B: Percentage of Childhood Injury Fatalities by Race

Race	Number	%
Hispanic	4	3%
Black	82	65%
White	37	29%

Table 2C: Percentage of Childhood Injury Fatalities by Sex

Sex	Number	%
Male	102	80%
Female	25	20%

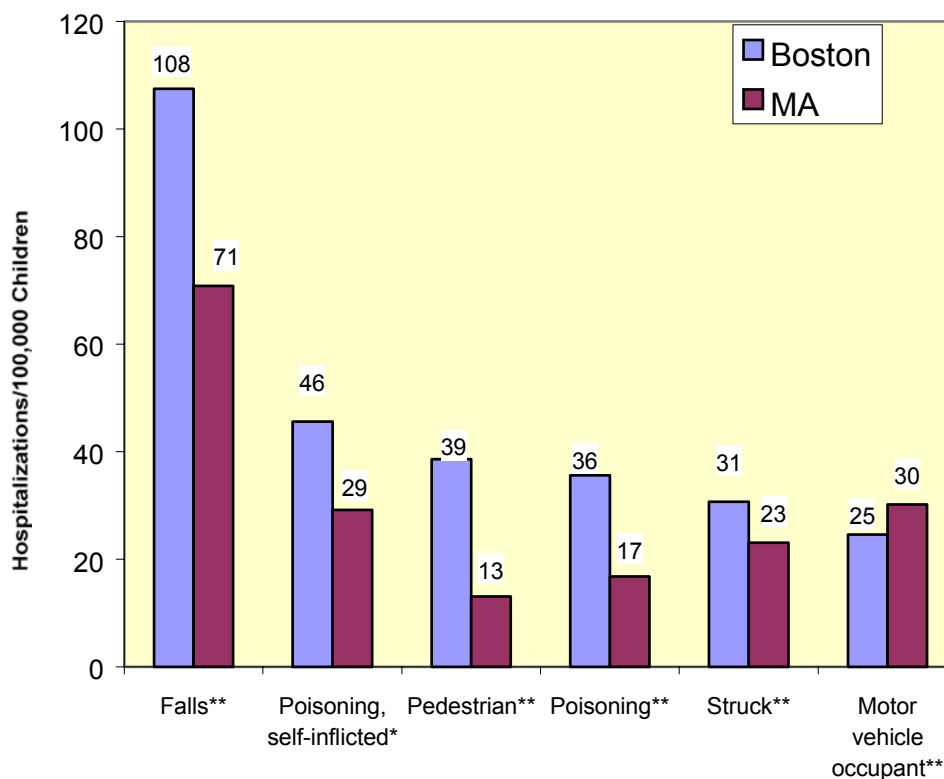
Fatal Injury Summary

- 15-19 year olds accounted for 88% of motor vehicle deaths, 100% of firearm homicides, and 100% of suicides by all causes. These injuries represent more than half of all injury deaths to Boston children.
- 91% of firearm homicide victims were black.
- All suicide by hanging victims and 98% of homicide by firearm victims were male. 87% of drowning victims and 78% of motor vehicle occupant deaths were male.

¹ Other injuries (unintentional) include suffocation, struck by, and motorcycle.² Other injuries (homicidal) include struck by and unspecified assaults.³ It is unknown whether the intent of the injury was unintentional, suicidal or homicidal.

**Figure 2: Boston vs. Statewide Injury Hospitalization Rates
Children Ages 0-19 Years, 1995-1999**

Data Source: Massachusetts Hospital Discharge Database, Massachusetts Division of Health Care Finance and Policy



* Intentional injuries

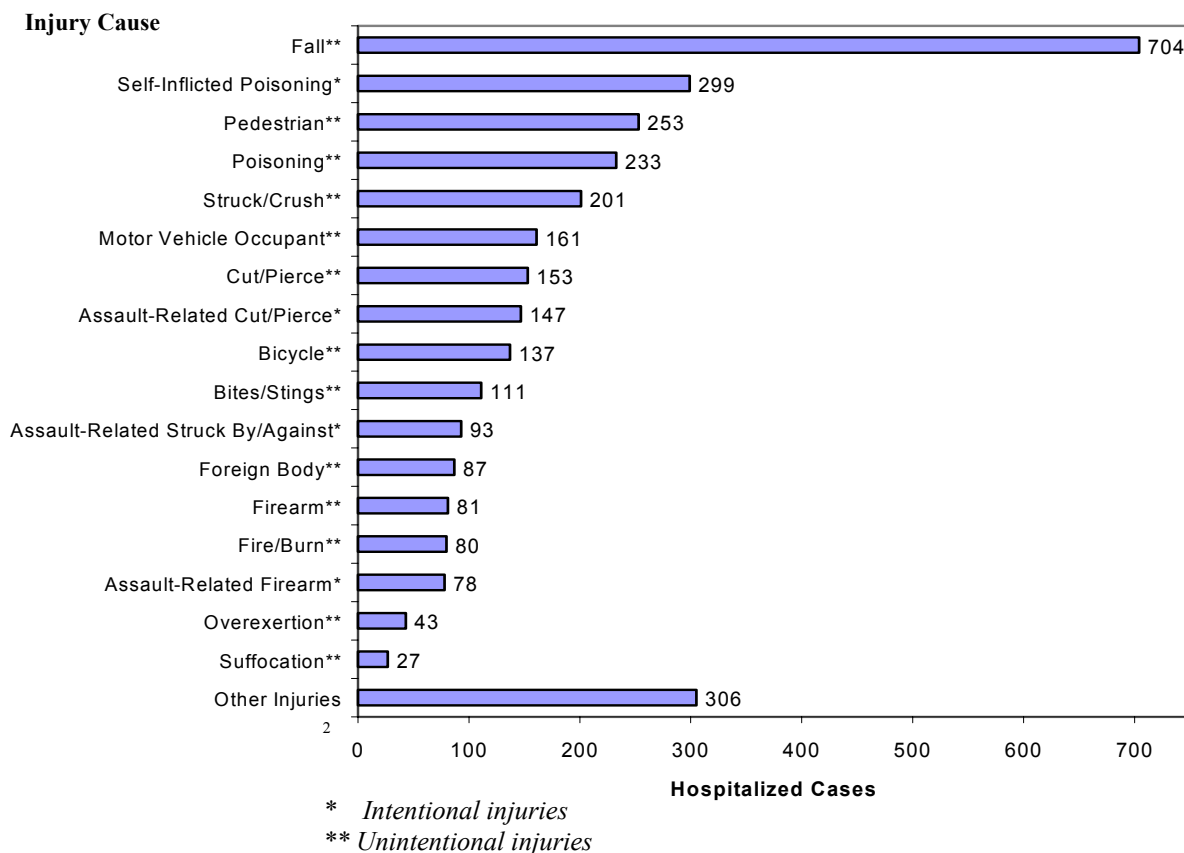
** Unintentional injuries

Summary

- From 1995 to 1999, 24,030 Massachusetts children (aged 0-19 years) were hospitalized for their injuries. 3,398 of these children were Boston children. The total average annual injury hospitalization rate to children living in Boston (518.8/100,000) was almost twice the statewide rate (297.0/100,000)
- Boston injury hospitalization rates to children were higher than statewide rates for most injuries with the exception of motor vehicle occupant (24.6/100,000 Boston vs. 30.5/100,000 statewide).
- Falls were the leading cause of injury hospitalizations to children both in Boston and in Massachusetts: (107.5/100,000 Boston vs. 71.3/100,000 statewide).
- For specific violence-related injuries, Boston hospitalization rates were much higher than the statewide average:
 - Firearm, assault: Boston (11.9/100,000) vs. MA (2.2/100,000)
 - Cut/Pierce, assault: Boston (22.4/100,000) vs. MA (4.3/100,000)
 - Struck By, assault: Boston (14.2/100,000) vs. MA (4.9/100,000)

Figure 3: Causes of Injury Hospitalizations¹ Boston Children Ages 0-19 Years, 1995-1999

Data Source: Massachusetts Hospital Discharge Database, Massachusetts Division of Health Care Finance and Policy



Boston Injury Hospitalizations

2

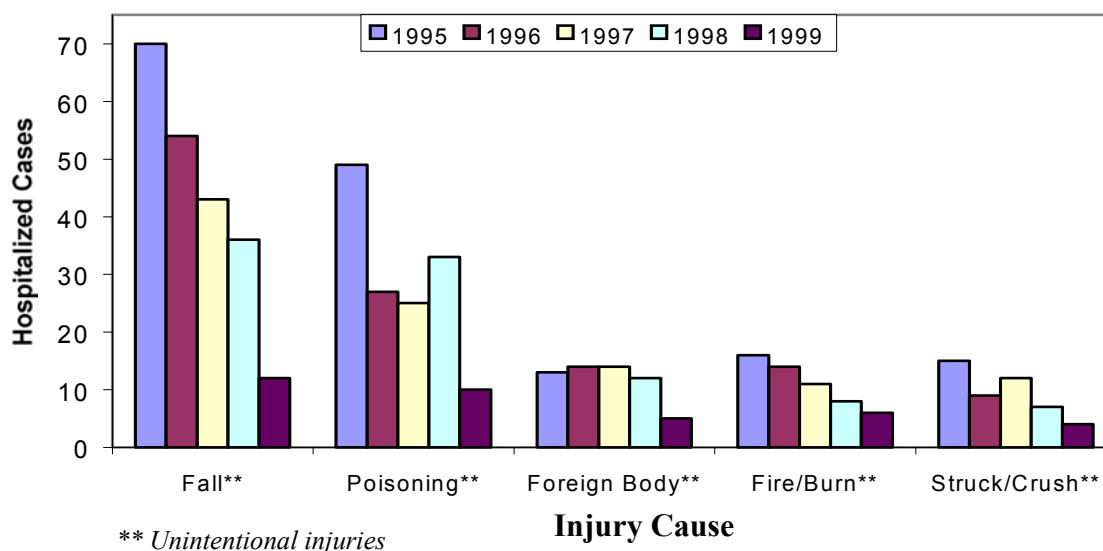
- There were 3,398 hospitalizations and 127 deaths to 0-19 year olds due to injuries from 1995-1999.
- The total number of injury hospitalizations to Boston children declined 65% between 1995 (n = 978) and 1999 (n = 341). Possible explanations for this decrease include a shift in the delivery of care from inpatient to outpatient services (including short “observation-bed” stays), and more effective injury prevention interventions.
- The leading cause of injury hospitalization to children was falls, followed by self-inflicted poisoning, and pedestrian injuries. However, different injury patterns emerge when hospitalizations are examined by age group (see pages 8 and 9).
- Children aged 15-19 experienced the highest rate of injury hospitalizations (752.6/100,000), almost 1.8 times the rate of children under fifteen (428.6/100,000).
- The burden of injury disproportionately affects some children (see page 11).
- Boys experienced almost twice the number of injury hospitalizations as girls (see page 12).

1 Unspecified (n = 115) injuries and injuries of undetermined intent (n = 89) are not presented here but are included in the total injury count. Injuries due to adverse effects and legal intervention are excluded from the report. All injuries are unintentional injuries unless otherwise noted. See page 19 for injury case definitions.

2 Other Injuries includes but is not limited to the following causes of injury: self-inflicted cut/pierce, machinery, assault-related fire/burn, and motorcycle.

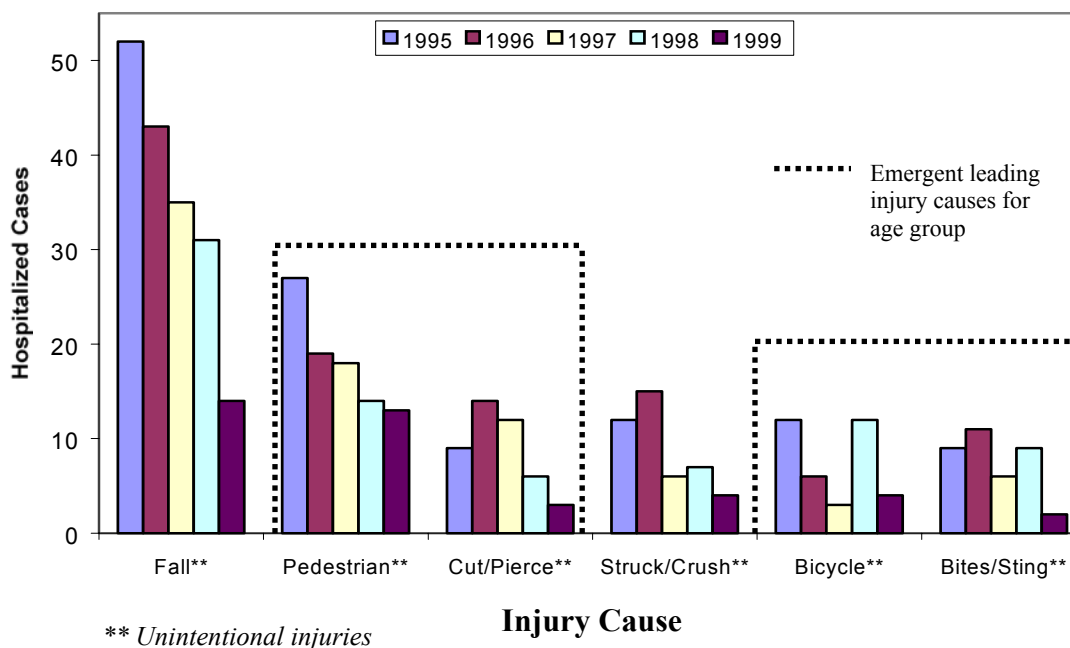
**Figure 4: Leading Causes of Injury Hospitalization
Boston Children, Ages 0-4¹ Years, 1995-1999**

Data Source: Massachusetts Hospital Discharge Database, Massachusetts Division of Health Care Finance and Policy



**Figure 5: Leading Causes of Injury Hospitalization
Boston Children, Ages 5-9 Years, 1995-1999**

Data Source: Massachusetts Hospital Discharge Database, Massachusetts Division of Health Care Finance and Policy

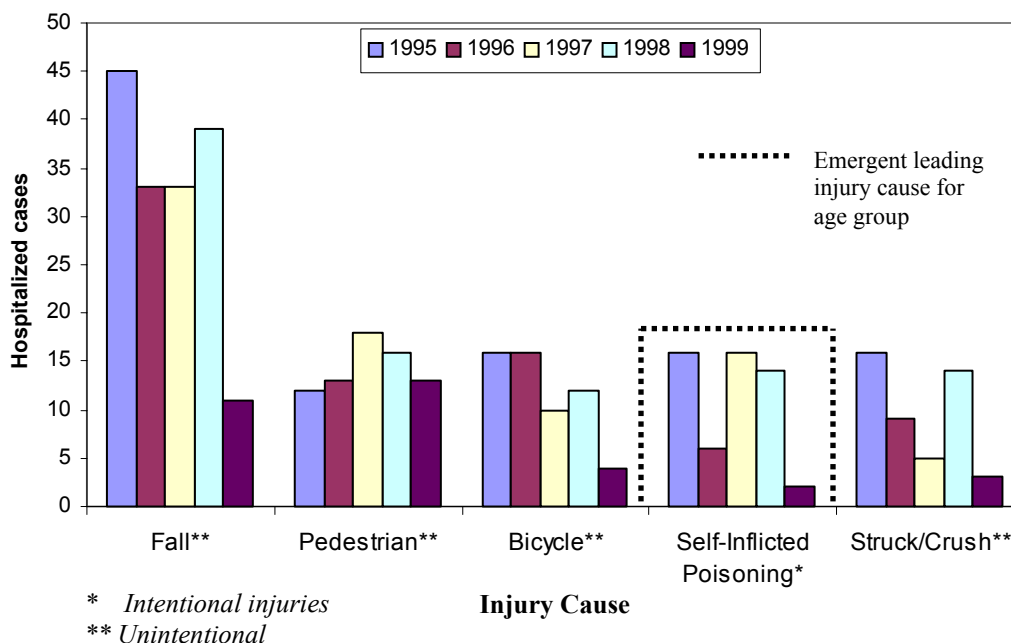


- The risk for specific injuries is dependent on a child's age and development. Pedestrian, cut/pierce, bicycle, and bite-related injuries emerge for the first time as leading causes of injury hospitalizations in children ages 5 to 9.

¹ The numbers of injuries to 0-1 year olds were considered to be too small to be reported separately.

**Figure 6: Leading Causes of Injury Hospitalization
Boston Children, Ages 10-14 Years, 1995-1999**

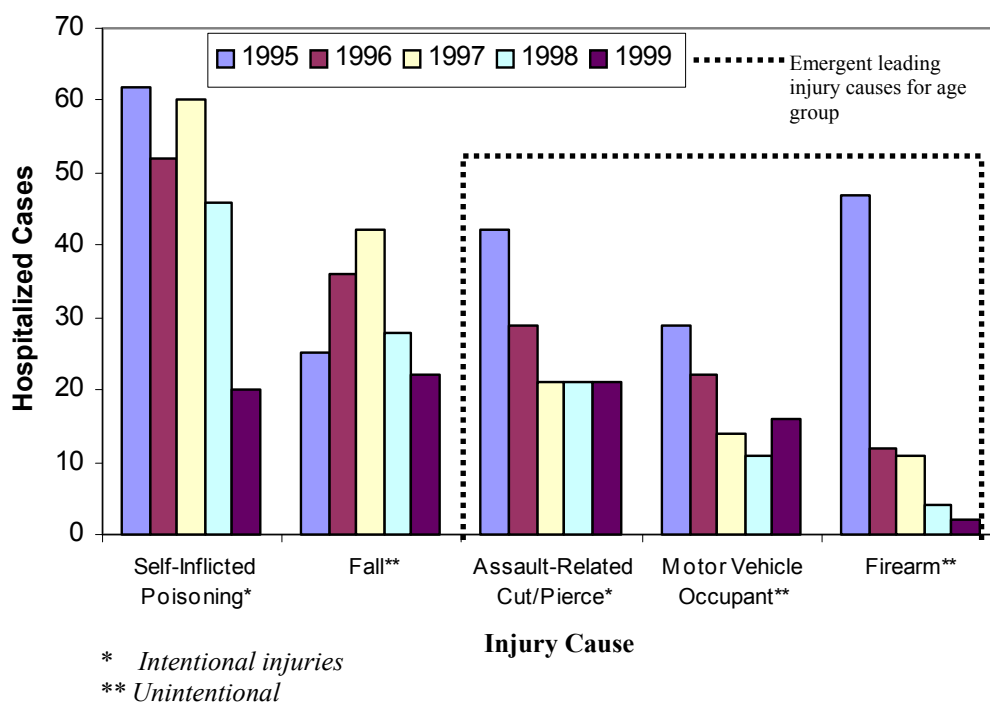
Data Source: Massachusetts Hospital Discharge Database, Massachusetts Division of Health Care Finance and Policy



- Self-inflicted poisonings emerge as a leading cause of injury hospitalizations in children ages 10-14.

**Figure 7: Leading Causes of Injury Hospitalization
Boston Children, Ages 15-19 Years, 1995-1999**

Data Source: Massachusetts Hospital Discharge Database, Massachusetts Division of Health Care Finance and Policy



- Assault-related cut/pierce, motor vehicle occupant, and firearm injuries emerge for the first time as leading causes of injury hospitalizations in children ages 15 to 19.

Age Differences in Boston Children Hospitalized for Injury

Table 3. Number and Average Annual Injury-Related Hospitalizations Among Boston Children, Ages 0-19, By Age Group, 1995-1999

Injury Cause	0-4 years		5-9 years		10-14 years		15-19 years	
	N	rate	N	rate	N	rate	N	rate
Unintentional	755	410.8	535	318.0	519	429.5	719	394.7
Bicycle	7	3.8	37	22.0	58	48.0	35	19.2
Bites/Stings	34	18.5	37	22.0	25	20.7	15	8.2
Cut/Pierce	38	20.7	44	26.2	36	29.8	35	19.2
Fall	215	117.0	175	104.0	161	133.2	153	84.0
Fire/Burn	55	29.9	8	4.8	3	--	14	7.7
Firearm	-- ¹	--	0	0.0	4	--	76	41.7
Foreign Body	58	31.6	19	11.3	5	4.1	5	2.7
MV Occupant	24	13.1	23	13.7	22	18.2	92	50.5
Pedestrian	41	22.3	91	54.1	72	59.6	49	26.9
Poisoning	144	78.4	29	17.2	16	13.2	44	24.2
Struck/Crushed	47	25.6	44	26.2	47	38.9	63	34.6
Suffocation	19	10.3	2	1.2	-- ¹	0.8	5	2.7
Other Injuries ²	72	39.2	26	15.5	69	57.1	133	73.0
Intentional	41	22.3	19	11.3	117	96.8	604	331.6
Self-Inflicted	2	--	5	3.0	65	53.8	273	149.9
Poisoning	2	--	3	--	54	44.7	240	131.7
Other Injuries ³	0	0.0	2	--	11	9.1	33	18.1
Assault-Related	39	21.2	14	8.3	52	43.0	331	181.7
Cut/Pierce	3	--	-- ¹	--	9	7.4	134	73.6
Firearm	0	0.0	0	0.0	7	5.8	71	39.0
Battery/Maltreatment	32	17.4	9	5.3	6	5.0	8	4.4
Struck by	0	0.0	2	--	20	16.6	71	39.0
Other Injuries ⁴	4	--	2	--	10	8.3	47	25.8
Undetermined⁵	25	13.6	7	4.2	9	7.4	48	26.3
All Injuries	821	446.8	561	333.4	645	533.7	1371	752.6

Data source: Massachusetts Hospital Discharge Database, Massachusetts Division of Health Care Finance and Policy

*average annual rate/100,000

Injury Risk by Age Group

- Boston children under the age of 5 were at greatest risk for *Battery/Maltreatment* compared to other children. 66% of these children were under the age of one year.
- Boston children between the ages of 5 and 9 years had the lowest overall injury rates. The leading cause of injury for these children were *Falls*, 21 % of which involved playground equipment.
- Boston children between the ages of 10 and 14 years were at greatest risk for a *Pedestrian-related* injury compared to children of other age groups.
- The leading cause of injury to Boston children between the ages of 15 and 19 years were self-inflicted *Poisonings*. 44% of these poisonings involved the use of analgesics, antipyretics, and antirheumatics.

1 Too small to report for confidentiality reasons.

2 Includes unintentional drowning, overexertion, machinery, and other injuries whose numbers are too small to report alone for confidentiality reasons.

3 Includes self-inflicted cut/pierce, suffocation, fire/burn, and other injuries whose incidence are too low to report alone for confidentiality reasons.

4 Includes assault-related fire/burn, poisoning, and other injuries whose incidence are too low to report alone for confidentiality reasons.

5 It is undetermined whether the intent of the injury was unintentional, self-inflicted or assault-related.

Race Differences in Boston Children Hospitalized for Injury

Table 3. Number and Average Annual Rate of Hospitalized Injuries for Boston Children, Ages 0-19 Years, By Race, 1995-1999

Injury Cause	Hispanic		Black		White	
	N	rate*	N	rate	N	rate
Unintentional	458	365.3	984	450.7	565	213.8
Bicycle	26	20.7	50	22.9	31	11.7
Bites/Stings	23	18.3	40	18.3	29	11.0
Cut/Pierce	34	27.1	53	24.3	33	12.5
Fall	128	102.1	237	108.5	183	69.3
Firearm	14	11.2	61	27.9	-- ¹	--
Fire/Burn	20	16.0	34	15.6	10	3.8
Foreign Body	14	11.2	35	16.0	15	5.7
MV Occupant	27	21.5	56	25.6	43	16.3
Pedestrian	43	34.3	120	55.0	39	14.8
Poisoning	34	27.1	104	47.6	51	19.3
Struck/Crushed	28	22.3	82	37.6	53	20.1
Other Injuries ²	67	53.4	112	51.3	77	29.1
Injury Cause	Hispanic		Black		White	
	N	rate*	N	rate	N	rate
Intentional	141	112.5	352	161.2	169	64.0
<i>Self-Inflicted</i>	70	55.8	107	49.0	103	39.0
Poisoning	61	48.7	93	42.6	96	36.3
Other Injuries ³	9	7.2	14	6.4	7	2.6
<i>Assault-Related</i>	71	56.6	245	112.2	66	25.0
Cut/Pierce	33	26.3	82	37.6	16	6.1
Firearm	15	12.0	53	24.3	-- ¹	--
Struck by	5	4.0	54	24.7	26	9.8
Maltreatment	4	--	29	13.3	9	3.4
Other Injuries ⁴	14	11.2	27	12.4	13	4.9
Undetermined⁵	20	16.0	43	19.7	16	6.1
<i>All Injuries</i>	619	493.7	1379	631.6	750	283.9

- average annual rate/100,000 population

Data Source: Massachusetts Hospital Discharge Database, Massachusetts Division of Health Care Finance and Policy.

- 6 Too small to report for confidentiality reasons.
- 7 Includes unintentional drowning, overexertion, machinery, and other injuries whose numbers are too small to report alone for confidentiality reasons.
- 8 Includes self-inflicted cut/pierce, suffocation, fire/burn, and other injuries whose incidence are too low to report alone for confidentiality reasons.
- 9 Includes assault-related fire/burn, poisoning, and other injuries whose incidence are too low to report alone for confidentiality reasons.
- 10 It is undetermined whether the intent of the injury was unintentional, self-inflicted or assault-related.

- Black children residing in Boston were at greatest risk for injury-related hospitalizations (631.6/100,000) compared to Hispanic (493.7/100,000) and white children (283.9/100,000).
 - Assault-related injury rates to black children in Boston were 4.5 times that of white children and 2.0 times that of Hispanic children.
 - Self-inflicted injury rates to Hispanic children in Boston were 1.1 times that of black children and 1.4 times that of white children.
- Black children residing in Boston were:
 - 1.6 times more likely than Hispanic children and 3.7 times more likely than white children to experience a *Pedestrian*-related injury.
 - 1.8 times more likely than Hispanic children and 2.5 times more likely than white children to experience an unintentional *Poisoning*.
 - 1.4 times more likely than Hispanic children and 6.2 times more likely than white children to experience an assault-related *Stabbing*.
 - 2.0 times more likely than Hispanic children to experience an assault-related *Firearm* injury.
- Hispanic children residing in Boston were:
 - 1.1 times more likely than black children and 2.2 times more likely than white children to experience an unintentional *Cut/Pierce* injury.
 - 4.2 times more likely than white children to experience an unintentional *Fire/Burn* injury.
 - 1.1 times more likely than black children and 1.3 times more likely than white children to experience a self-inflicted *Poisoning*.
- White children residing in Boston had lower rates of injury in all categories and intent groups compared to other children.

Sex Differences in Boston Children Hospitalized for Injuries

Table 4. Number and Average Annual Rate of Hospitalized Injuries to Boston Children, Ages 0-19 Years, By Sex, 1995-1999

Injury Type	Male		Female	
	N	rate*	N	rate
Unintentional	1667	504.7	861	265.2
Bicycle	109	33.0	28	8.6
Bites/Stings	61	18.5	50	15.4
Cut/Pierce	110	33.3	43	13.2
Fall	467	141.4	237	73.0
Firearm	74	22.4	7	2.2
Fire/Burn	47	14.2	33	10.2
Foreign Body	49	14.8	38	11.7
MV Occupant	89	26.9	72	22.2
Overexertion	32	9.7	11	3.4
Pedestrian	150	45.4	103	31.7
Poisoning	128	38.8	105	32.3
Struck/Crushed	153	46.3	48	14.8
Other Injuries ¹	198	59.9	86	26.5
Injury Type	Male		Female	
	N	rate	N	rate
Intentional	447	135.3	334	102.9
Self-Inflicted	93	28.2	252	77.6
Poisoning	71	21.5	228	70.2
Cut/Pierce	6	1.8	14	4.3
Other Injuries ²	22	6.7	24	7.4
Assault-Related	354	107.2	82	25.3
Cut/Pierce	135	40.9	12	3.7
Firearm	71	21.5	7	2.2
Struck by	79	23.9	14	4.3
Maltreatment	25	7.6	30	9.2
Other Injuries ³	44	13.3	19	5.9
Undetermined⁴	62	18.8	27	8.3
Total Injuries	2176	658.8	1222	376.3

Data Source: Massachusetts Hospital Discharge Database, Massachusetts Division of Health Care Finance and Policy

* average annual rate/100,000

Injury Risk by Sex

- The average annual injury rate for boys in Boston was 1.7 times the injury rate of girls.
 - Boys experienced 4.2 times the assault rates and 1.9 times the unintentional injury rates compared to girls.
 - Girls were 2.8 times more likely to suffer a self-inflicted injury compared to boys.
- Girls in Boston were at increased risk for:
 - Self-inflicted *Poisonings*: 3.3 times the risk compared to boys.
 - Self-inflicted *Cut/Pierce*: 2.4 times the risk compared to boys.
 - Assault-related *Battery/Maltreatment*: 1.2 times the risk compared to boys.
- Boys experienced higher rates of injury for all unintentional injuries and most assault-related injuries. Boys in Boston were at increased risk for:
 - Unintentional *Firearms*: 10.2 times the risk compared to girls.
 - Unintentional *Pedal Cyclist*: 3.8 times the risk compared to girls.
 - Assault-related *Cut/Pierce*: 11.1 times the risk compared to girls.
 - Assault-related *Firearms*: 9.8 times the risk compared to girls.

1 Includes unintentional drowning, machinery, and other injuries whose incidence are too low to report alone for confidentiality reasons.

2 Includes self-inflicted suffocation, fire/burn, and other injuries whose incidence are too low to report alone for confidentiality reasons.

3 Includes assault-related fire/burn, poisoning, and other injuries whose incidence are too low to report alone for confidentiality reasons.

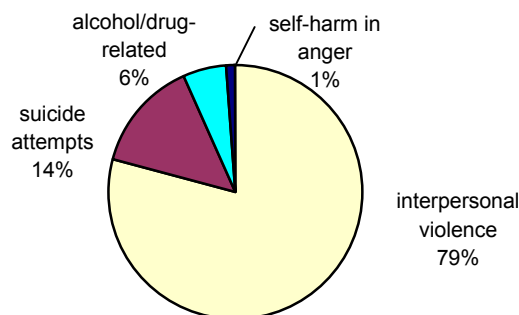
4 It is unknown whether the intent of the injury was unintentional, self-inflicted or assault-related.

Boston Emergency Department Surveillance System

The Boston Emergency Department Surveillance System (BEDSS) is a collaboration among four hospital-based pediatric emergency departments and the Boston Public Health Commission. BEDSS collects data pertaining to four types of events: injuries resulting from interpersonal violence, injuries resulting from self-harm in anger, alcohol or drug related visits, and suicide attempts. The four hospital pediatric emergency departments see an estimated 95% of all pediatric (ages 3-18) emergency department visits in Boston. From July 1999 through June 2000, BEDSS data show that Boston pediatric emergency departments identified 444 injuries to Boston youths resulting from interpersonal violence, 78 suicide attempts, 7 injuries resulting from self-harm in anger, and 31 alcohol and drug related visits among Boston youths (Figure 8).

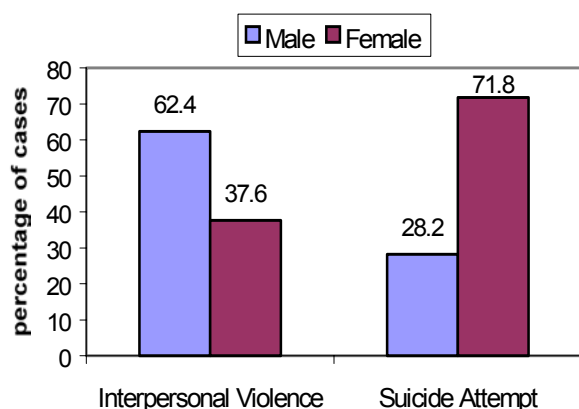
Figure 8: ED Indicator Injuries to Boston Children (3-18 years), July 1999- June 2000

N= 560



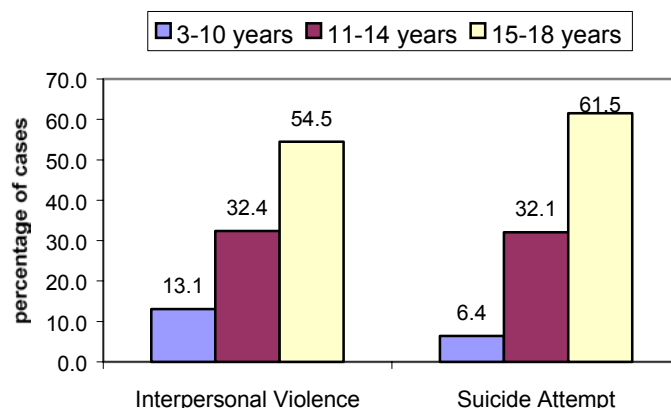
Data Source: Boston Emergency Department Surveillance System

Figure 9: 1999 BEDSS Data: Gender Differences



Data Source: Boston Emergency Department Surveillance System

Figure 10: 1999 BEDSS Data: Age Differences



Data Source: Boston Emergency Department Surveillance System

Prevention Resources for Boston Children

Boston Child Safety Resources

Projects and Services of the Childhood Injury Prevention Program (CIPP), Boston Public Health Commission (617) 534-5197

Window Falls Prevention

The Kids Can't Fly Campaign (KCF): In response to the ongoing tragedy of children falling out of windows, the KCF campaign educates communities about window falls prevention and promotes the use of child safety window guards. A city-wide intervention program, the Matching Buy program, provides matching funds for landlords to outfit entire properties with window guards. Subsidized window guards are sold at Boston Materials Co-op for Boston residents. Property owners can call CIPP for Matching Buy applications.

Child Passenger Safety

The Buckle Up Hotline: Initiated in conjunction with the Greater Boston Safe Kids Coalition, of which CIPP is the lead agency, the Hotline promotes child passenger safety by serving as a statewide educational resource for parents and professionals, as well as a reporting service for child passenger safety law violators. Parents and agencies can request specific child passenger safety information and bulk materials for distribution by calling (617) 443-SAFE. Individuals who observe children unbuckled in motor vehicles can report the license plate numbers to the Hotline. Information on the Massachusetts child passenger safety law, correct use of car safety seats, and resources for purchasing low-cost car safety seats is available.

BuckleUp Boston!: The mission of *BuckleUp Boston!* is to increase awareness about child passenger safety by improving access, affordability, and knowledge of correct use of car safety seats. CIPP organizes and provides funds to community health centers to provide child passenger safety trainings and distribute low-cost car safety seats to low-income Boston residents.

Families receiving care at one of the health centers or hospitals listed below can call* to learn if they are eligible to receive a low cost safety seat.

Boston Medical Center 414-5004
 Children's Hospital 355-6900
 Health Baby/Health Child 534-5832 x 111
 Mass General Hospital 724-4377
 Neponset Health Center 282-3200 x 4036
 Health Care for the Homeless 414-4624
 New England Medical Center 636-1380
 Upham's Corner Health Center 740-8065
 Codman Square Health Center 822-8150
 Harvard Street Neighborhood Health Center 825-3400 x 261

Whittier Street Health Center 442-0400 x 3115
 Brigham and Women's Hospital 732-5500 1, x 3436
 Dimock Community Health Center 442-8800 x 1352
 Boston Medical Center HealthNet Plan 414-6315
 Martha Eliot Community Health Center 971-2129
 Roxbury Comprehensive Health Center 442-7400
 South Boston Community Health Center 464-7653
 East Boston Neighborhood Health Center 568-4740
 Mattapan Health Center 296-1645

* area code 617

Boston Child Safety Resources

Bicycle/Sports Safety

The Helmet Rx Program: This program works to reduce the risk of head injuries to children in Boston by making helmets affordable for all Boston residents. CIPP purchases multi-sport helmets for use in bicycling, in-line skating, and skateboarding and distributes them families at the Boston Medical Center Gift Shop for \$5.00. Pediatricians at Boston Medical Center and community health centers write “prescriptions” for the helmets and provide counseling on bicycle and skating safety. Community health centers can also purchase helmets in bulk from CIPP at the \$5.00 cost for distribution at health fairs and local events.

Injury Prevention Training

Provider Trainings: Injury prevention trainings are available for hospitals, health centers, home visiting programs, community-based agencies and schools in Boston. Trainings include information on injury epidemiology, child passenger safety, as well as an introduction to the Injury Prevention Counseling Schedule and the SAFEHOME Report.

Parent Trainings: Injury prevention trainings are available to parent groups with an emphasis on children ages six and under. Topics include home safety, child passenger safety, bike safety, and general injury prevention. Home childproofing safety supplies are provided to participants. Presentations can be arranged by calling CIPP at (617) 534-5197.

Home Safety

Home Childproofing Safety Supplies: Supplies are provided in bulk to agencies who have been trained by CIPP for distribution to families. Provider trainings can be arranged for groups with a minimum of 10 people or individuals can attend trainings at the Community Health Education center.

Site Inspections: Family shelters and residential programs for women and children can request site inspections, which emphasize safety issues and include the option of training for staff and parents. Technical assistance and additional resources are provided to sites committed to reducing injury risks to children.

Safe Home Visits: Families of children in Boston who have been injured are referred by Boston hospitals or clinicians to CIPP for a Safe Home Visit. At-risk pregnant women can also be referred for a Safe Home Visit. Each family receives home childproofing advice and safety supplies.

Injury Prevention Legislation Support

The Childhood Injury Prevention Program works to support city, state and federal legislation addressing injury prevention issues, including passenger and bicycle safety, specifying window guard requirements, establishing handgun regulations, setting housing and sanitary code standards, and regulating child products.

Boston Child Safety Resources

Pedestrian Safety

The Boston Pedestrian Protection Program (BPPP): This program is implemented through a task force of agencies from throughout the city with the goal of increasing pedestrian safety. CIPP is the lead agency of the task force. Survey research of pedestrian behavior and Boston EMS data are continuously analyzed while planning environmental interventions, such as changing pedestrian walk times. The BPPP has also launched a public awareness campaign with the slogan, “Walk this Way”, from the title of Aerosmith’s hit song. *Walk this Way* signs encourage safe pedestrian behavior and appear throughout the city at busy intersections and on buses and trains. The program promotes ongoing pedestrian education through high-visibility campaign events and by distributing materials to community-based agencies for local advocacy efforts.

National Safe Kids Campaign

Greater Boston Safe Kids Coalition: CIPP is the lead agency of the Greater Boston Safe Kids Coalition, the local chapter of the National Safe Kids Campaign, an effort of public and private organizations and the corporations working to reduce unintentional injuries—the number one killer of children—through increased public awareness and implementing injury prevention strategies. In cooperation with the Coalition members, CIPP organizes childhood injury prevention educational events throughout the year in Greater Boston.

Technical Notes

Technical Notes

Children

Children were defined as individuals between the ages of birth and 19 years.

Race

7% of the Boston population aged 0-19 years are races other than white, black, or Hispanic according to the Massachusetts Institute for Social and Economic Research (MISER) 1997 population estimates. The number of injuries among this population was too small to produce reliable statistical results and are therefore not reported.

Boston Residency

A child was considered a Boston resident if his or her home zip code was one of those listed by the United States Postal Service as part of Boston:

02101-02137, 02163, 02196, 02199, 02201- 02217,
02222, 02241, 02266, 02272, 02283, 02284, 02293,
02295, 02297

Injuries

Injury-Related Deaths were analyzed using the Massachusetts Department of Public Health's Registry of Vital Records and Statistics Mortality Database. For the purpose of this report, an injury death was defined as any death with an International Classification of Disease, Version 9 external cause of injury code for years 1995-1998 or an International Classification of Disease, Version 10 code of V01-Y36, Y85-Y87, or Y89 for 1999 in the underlying cause of death field. Injury deaths due to an adverse effect or legal intervention were excluded from this report. Despite the differences in the coding protocols used between 1995-1998 and 1999, injury deaths due to similar mechanisms or causes were added together for the purpose of this report.

Injury-Related Hospitalizations were analyzed using the Division of Health Care Finance and Policy's Massachusetts Hospital Discharge Database. For the purpose of this report, an injury was defined as any non-fatal injury hospitalization with an International Classification of Disease-Clinical Modification, Version 9 external cause of injury code for years 1995-1999. Injury hospitalizations due to an adverse effect or legal intervention were excluded from this report. Cases with a V code in any diagnostic field were excluded from the original injury subset in an attempt to avoid duplication of injury cases (please contact the Injury Surveillance Program for a recent modification to this methodology).

External cause of injury codes were grouped into injury causes using a modified version of the "Recommended framework of E code groupings for presenting injury mortality and morbidity data (August 1, 1999)" developed by Lee Annest et al. at the National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. (<http://www.cdc.gov/ncipc/whatsnew/matrix2.htm>, 9/1/99.) The matrix was modified in two ways: 1) *Foreign Body* (E914-E915) was removed from the *Other Specified, Unintentional* category and moved to it's own category; and 2) *Crushing* injuries (E918) were removed from the *Other Specified, Unintentional* category and added to the *Unintentional Struck/Crushed* category.

Databases

Morbidity information was queried from the Massachusetts Hospital Discharge Database (MHDD) of the Massachusetts Division of Health Care Finance and Policy, and from the Boston Emergency Department Surveillance System (BEDSS) of the Boston Public Health Commission, Research and Technology Services.

Mortality information was obtained from the Registry of Vital Records and Statistics, Bureau of Health Statistics, Research & Evaluation, Massachusetts Department of Public Health.

Timeframe

Hospital data is submitted by hospital fiscal year (October 1-September 30). The most recent data year available at the time of analysis was for the hospital fiscal year 1999. Mortality data was aggregated by calendar year. Differences between calendar year and fiscal year are negligible.

Scope of the Report

While the combination of deaths and hospital discharges creates an adequate picture of moderate to severe injury to Boston children, this report does not capture the injuries that are treated in emergency departments, urgent care facilities, or in primary care physicians' offices. The number of injuries treated in these settings is many times greater than deaths or hospitalizations. The National Center for Injury Prevention and Control estimates that "for every childhood death caused by injury, there are approximately 34 hospitalizations, 1000 emergency department visits, many more visits to private physicians and school nurses, and an even larger number of injuries treated at home."

(<http://www.cdc.gov/ncipc/factsheets/childh.htm>, Childhood Injury Fact Sheet, NCIPC, CDC.) The newly implemented statewide mandated Emergency Department Discharge Database will soon fill this gap. Please contact the Injury Surveillance Program for more information (617-624-5665).

Appendix

Appendix 1: External Cause of Injury Definitions and Examples (ICD-9-CM)

Fatal and non-fatal injury data in this report are based on mechanism or the external cause of injury codes. Table 1 provides the codes and a few examples to help in interpreting the charts that follow. The Injury Surveillance Program has adopted the Centers for Disease Control's (CDC) recommended framework of E-code groupings for presenting injury mortality and morbidity data. Note: ICD-9 coding is used for 1995 to 1998 Hospital Discharge and Mortality Data and 1999 Hospital Discharge data. ICD-10 is used for the 1999 Mortality database (Contact ISP for ICD-10 classifications).

Injury Cause	Manner/Intent	E-code Definitions	Examples
Bicycle	Unintentional	E810-E819(.6) E800-E807(.3) E820-E825(.6) E826.1 E826.9 E827-E829(.1)	Fell off bike on mountain trail. Hit by a car while riding bike in the street. Ran into a pedestrian on the sidewalk. Ran into dog.
Bites/Stings	Unintentional	E905.0-E905.6 E905.9 E906.0-.5 E906.9	Bitten by any animal, including dog, cat, rat, or snake. Bitten or stung by an insect, including bee, wasp, spider, scorpion.
Cut/Pierce	Assault-Related	E966	Stabbed with a knife. Pushed through glass window.
	Self-Inflicted	E956	Purposely cut wrists with razor blade.
	Unintentional	E920.0-E920.9	Cut oneself on glass from broken bottle dropped in bathroom. Cut oneself with a knife while chopping vegetables.
Drowning/Submersion	Assault-Related	E964	Held underwater by another person.
	Self-Inflicted	E954	Jumped into river with intent to drown oneself.
	Unintentional	E830.0-E830.9 E832.0-E832.9 E910.0-E910.9	Inhaled water during water sports or swimming. Child slipped underwater during bath. Inhaled water during a boating accident.
Fall	Assault-Related	E968.1	Pushed down a flight of stairs.
	Self-Inflicted	E957.0-E957.9	Jumped off building with intent to harm oneself.
	Unintentional	E880.0-E886.9 E888	Fell off of bed. Tripped down stairs. Slipped on ice. Fell during football game.
Fire/Burn	Assault-Related	E961, E968.0, E968.3	Purposely burned by boiling water thrown by another person.
	Self-Inflicted	E958.1, E958.2, E958.7	Purposely burned oneself with cigarette.
	Unintentional	E890.0-E899 E924.0-E924.9	Spilled hot coffee. Burned on stove. Burned in bath water that was too hot.
Firearm (Includes handguns, rifles, shotguns, etc. Excludes BB and pellet guns.)	Assault-Related	E965.0-E965.4	Shot in traffic altercation. Shot by ex-husband during argument.
	Self-Inflicted	E955.0-E965.4	Purposely shot self in chest.
	Unintentional	E922.0-E922.3 E922.8 E922.9	Bullet ricocheted off target and hit observer. Shot self in foot while cleaning gun. Gun went off while victim was walking around.
Foreign Body	Unintentional	E914-E915	Sawdust in eye from cutting wood. Plastic toy lodged in ear.
Machinery	Unintentional	E919.0-E919.9	Hand crushed in printing press.
Motorcycle	Unintentional	E810-E819(.2, .3)	Rider injured in crash with truck. Motorcycle slid on gravel.

Injury Cause	Manner/Intent	E-code Definitions	Examples
Motor Vehicle Occupant	Self-Inflicted	E958.5	Driver purposely ran into telephone pole.
Motor Vehicle Occupant	Unintentional	E810-E819(.0, .1)	Car rear-ended at stop sign. Head on collision with another car.
Motor Vehicle, Unspecified	Unintentional	E810-E819(.8, .9)	Injury to someone involved in motor vehicle crash but unknown if occupant, pedestrian, etc.
Other Specified	Assault-Related* Battery/ Maltreatment	E960.1 E965.5-E965.9 E967.0-E967.9 E968.4 E968.6	Child battered or maltreated. Raped. Shot with BB gun. Car bomb exploded. (Code can also indicate who committed the assault.)
	Self-Inflicted	E955.5 E955.6 E955.9 E958.0 E958.4	Purposely shot self with BB gun. Jumped in front of train.
	Unintentional	E846-E848 E900.0-E904.9 E905.7-E905.8 E906.8 E907.0-E909.9 E921.0-E921.9 E922.4 E923.0-E923.9 E925.0-E926.9 E928.0-E928.2 E929.0-E929.5	Variety of injuries including but not limited to exposure to extreme cold, heat, weather or altitude; injury caused by animals (other than bites or stings); earthquakes; explosions; air/BB guns; electricity; radiation; and late effects of unintentional injuries.
Other specified, Not Elsewhere Classifiable	Assault-Related	E968.8 E969	Injuries purposely inflicted by another person which are not described in any other category.
	Self-Inflicted	E958.8 E959	Injuries caused by intent to harm self that are not described in any other category.
	Unintentional	E928.8 E929.8	Injury cause which is not described in any other category.
Overexertion	Unintentional	E927	Pulled muscle during sports. Twisted ankle walking down stairs. Injured back lifting heavy boxes.
Pedestrian	Unintentional	E810-E819(.7) E800-E807(.2) E820-E825(.7) E826-E829(.0)	Hit by car while walking across street. Collision with bicycle courier. Run over by three-wheeler.
Poisoning	Assault-Related	E962.0-E962.9	Was served drink intentionally laced with pesticide.
	Self-Inflicted	E950.0-E952.9	Purposely breathed exhaust fumes from car. Intentional overdose of sleeping pills.
	Unintentional	E850.0-E869.9	Child drank cleanser from bottle under sink. Unknowingly ate poisonous mushroom.
Struck by/against	Assault-Related	E960.0 E968.2	Hit with barstool in fight. Slapped with open hand. Kicked and hit with fists. Thrown against wall.
	Unintentional	E916-918	Struck by falling box. Crushed fingers in car door. Collided with another player during football game.
Suffocation	Assault-Related	E963	Strangled.
	Self-Inflicted	E953.0-E953.9	Hanged self.
	Unintentional	E911-E913.9	Choked on piece of meat.

Injury Cause	Manner/Intent	E-code Definitions	Examples
Transport, other	Unintentional	E800-E807(.0, .1, .8, .9) E820-E825(.0-.5, .8, .9) E826.2-E826.8 E827-E829(.2-.9) E831.0-E831.9 E 833.0-E845.9	Crashed all-terrain vehicle (ATV) into tree. Bucked off horse. Train crash.
Unspecified	Assault-Related	E968.9	Injury intentionally inflicted by another but by unknown means.
	Self-Inflicted	E958.9	Injury intentionally inflicted to oneself but by unknown means.
	Unintentional	E887 E928.9 E929.9	Unintentional injury caused by unknown means.
	Undetermined	E980-E989	Injury by any means but of unknown intent
Injuries not included in this report:			
Adverse Effects	---	E870-E879 E930.0-E949.9	Adverse effects of medical care or drugs
Legal Intervention/ Operations of War	---	E970-978 E990-E999	Injury by any means but received while being legal detained or during war/civil insurrection